GEOS3315

Global Tectonics and Cycles

Session 1, Weekday attendance, North Ryde 2020

Department of Earth and Environmental Sciences

Contents

General Information

Unit convenor and teaching staff
Craig O'Neill
craig.oneill@mq.edu.au

Lecturer
Yingjie Yang
yingjie.yang@mq.edu.au

Lecturer
Suzanne O'Reilly
sue.oreilly@mq.edu.au

Credit points
10

Prerequisites
20cp in GEOS or MATH or PHYS units at 2000 level including GEOS2311 or GEOS205

Corequisites

Co-badged status

Unit description
This multidisciplinary unit integrates recent advances in geodynamics, global cycle modelling, geophysics and geochemistry to understand the tectonic evolution of the Earth, its impact on the surface and the complex feedbacks between internal dynamics and the atmosphere, hydrosphere and biosphere (e.g. volcanic degassing, natural CO2 sequestration, feedback between climate and plate tectonics, among others). Topics covered include structure and dynamics of the Earth, global supercycles, heat and mass transfer, physical processes controlling Earth dynamics, and recent developments in the understanding of the links between the solid Earth and the atmosphere/hydrosphere/climate. Through hands-on workshops, students will also gain experience in computer programming, scientific visualization and quantitative data analysis.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Demonstrate knowledge of the interaction between global tectonics of the Earth and its surface systems

ULO2: Analyse the processes powering mantle and lithosphere dynamics, and tectonic plates

ULO3: Apply scientific methodology, in accessing, using and synthesising Earth-science information

ULO4: Apply geodynamic knowledge to solving problems, data analysis, scientific visualisation, and evaluating ideas and information

ULO5: Demonstrate the capacity to present ideas clearly with supporting evidence

Assessment Tasks

Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult iLearn for revised unit information.

Find out more about the Coronavirus (COVID-19) and potential impacts on staff and students

General Assessment Information

General Assessment Information

Assessment Criteria

Assessment at Macquarie University is standards-based, as outlined in the Assessment Policy. This means that your work will be assessed against clear criteria, and these criteria will be made available when the assessment tasks are released to you on iLearn.

Submission of Assessments

Your two major assignments must be submitted online through Turnitin. Links for the submission of each assignment will be available on iLearn. Your quizzes are to be completed on iLearn, and your exam must be sat in person during the formal examination period. The due dates for all assessment tasks are not negotiable. If you have commitments that will significantly impact your study during the session then you must plan for this in advance as part of an effective individual study plan and you may need to contact the unit convenor for advice.

Hurdle Requirement

A hurdle requirement is an activity for which a minimum level of performance or participation is a condition of passing the unit (see the Assessment Policy). ***While we do not have a formal hurdle requirement in this unit, weekly attendance of the workshops is required to satisfactorily complete the assessment tasks.*** For internal students this means attending and fully completing your scheduled classes each week.

Marking of Assessments

Your two major assignments will be marked through Turnitin and feedback will be noted on the assignment. ***Do not*** submit your assignments via email or in hard copy. Your grades will be returned using the Grades Report on iLearn. Grades from your quizzes and the exam will also be made available on iLearn.

We aim to return your assignments with feedback within two to three weeks of the date that you submit your assignment, and before your next assignment is due. We appreciate your patience and will advise you through iLearn when your marked assignments and feedback are available for viewing.

Penalties for Late Assessments

The penalty for late submission of assessments in this unit is ***ten percent (10 %) of the assessment value per day***, calculated from the due time and date. This means that if the assignment is worth a total of 30 marks (or 30 % of the unit) you will lose 3 marks for each day late. This is a hefty penalty designed to make you aware of the importance of organising yourself around assessment due dates. The penalty will be applied over weekdays and weekends unless you have been granted an extension by the lecturer responsible for the assignment prior to the due date.

Extensions for Assessments

To obtain an extension for an assessment task, you will need to follow the formal process as outlined in the Special Consideration Policy, and you must provide appropriate supporting documentation (e.g. medical certificate - see advice for Special Consideration requests). The final decision regarding the granting of an extension and/or a late penalty lies with the unit convenor/lecturer responsible for the assignment. Permission for extension must be sought ***well before the due date*** unless this is absolutely impossible. Let us know of problems in advance or as soon as possible, not after the event: we are likely to be much more sympathetic and flexible in our requirements if you follow this advice.

Exams

Details of exam conditions and timetables can be found at the Exams and Results portal. It is very important to note that the final exam period includes weekdays and weekends and all students (including international exchange students) are expected to present themselves for the exam at the time and place designated in the exam timetable. The timetable will be available in Draft form approximately eight weeks before the commencement of the exams and in Final form four weeks before the commencement of exams.

For unavoidable disruptions during exams, you should apply for Special Consideration as soon as possible. If a Supplementary Examination is granted as a result of the Special Consideration process, the exam time will be scheduled ***after the conclusion of the official examination period*** and you will receive an individual notification one week prior to the exam with the exact date and time of the Supplementary Examination. Note that ***it is Macquarie University policy not to set early examinations*** - all students are expected to ensure that they are available until the final day of the official examination period. You are required to download your room and seat number from the exam website before the exam.

Delivery and Resources

Coronavirus (COVID-19) Update

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: https://ask.mq.edu.au/account/pub/display/unit_status

WORKSHOP FORMAT

The unit will be delivered as a 5 hour workshop, incorporating practical, lecture, and workshop components, as timetabled.

These workshops will convey to the class the key concepts of the unit using a combination of mini-lectures, readings, presentations, and practical work. Readings will be a combination of research papers, and extracts from textbooks. The readings, and workshop attendance and participation, are essential as the content covers core components of the course, and is examinable. A rubric for assessment will be distributed in class.

TEXTBOOK AND TECHNOLOGY USED

The recommended textbook for the unit is “The Solid Earth (2nd Ed)” by Fowler. The book "Global Tectonics" by Kearey, Klepeis & Vine is a useful text and worth considering.The unit also has a WEB site which can be found through the Online Learning @ MQ WEBSITE at http://ilearn.mq.edu.au/. This site contains information such as copies of colour images, copies of overheads and PowerPoint’s shown in class and copies of the practicals that we do in class. The WEB site will also allow access to the digital version of the lectures recorded through the iLecture system. As well, this site will access the on-line quizzes that will need to be completed during the semester. At the start of the year you should be issued with a username and password to access all the WEB sites available for the units you have taken. This will get you into the front page of the GEOS385 WEB site.

Below is a list of references that may be helpful in expanding certain aspects of the unit.

REFERENCES

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QE501.A7513/1984 Artyushkov E.V ., Geodynamics

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QC806.C65 Cook A.H., Physics of the Earth and Planets, 1973

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QC806.D39 De Bremaecker J-C, Geophysics: The earth's Interior, 1985

QB501.N18 Dermott S.F. (Ed), The origin of the Solar System, 1977

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QC806.F625 Fowler C.M.R., The Solid Earth, 1990*

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QC827.I7 Irving E., Paleomagnetism, 1964

QE509.E234/1998 Jackson I, The Earth's Mantle, 1998

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QE35.E18 McElhinny M.W., The Earth, its Origin, Structure and Evolution, 1979

QE501.4.P35.M35/2000 McElhinny, M.W.& McFadden, P., Paleomagnetism: continents and oceans, 2000

QC816.M4 Merrill R.T. & McElhinny M.W., The Earth's Magnetic Field, 1983

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QE511.4.H57/2000 Richards et al, The History and Dynamics of Global Plate Motions, 2000

QE501.S3/1982 Scheidegger A.E., Principles of Geodynamics

QC806.S54/1997 Sleep N.H. & Fujita K., Principles of Geophysics, 1997

QE26.2.C35 Smith D.G. (Ed), The Cambridge Encyclopaedia of Earth Sciences

QC806.S65 Stacey F.D., Physics of the Earth (2nd & 3rd eds.), 1977 & 1992

QE511.44.G46 Summerfield M.A., Geomorphology and Global Tectonics, 2000

QE501.T83 Turcotte D.L. & Schubert G., Geodynamics, 1982*

QE340.B55Veevers J. J., Billion-year earth history of Australia and neighbours in Gondwanaland, 2000*

QE340.B552Veevers J.J., Billion-year earth history of Australia *7-Day Loan

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops
- StudyWise
- Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.